

SEQUENCE LISTING

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<120> CNS chloride modulation and uses thereof

<130> 85409-29

<150> US 60/470,885
 <151> 2003-05-16

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<170> PatentIn version 3.2

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Ala Gly Gly Ser Tyr Tyr Met Ile Ser Arg Ser Leu Gly Pro Glu Phe
165 170 175

Gly Gly Ala Val Gly Leu Cys Phe Tyr Leu Gly Thr Thr Phe Ala Gly
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Ala Met Tyr Ile Leu Gly Thr Ile Glu Ile Leu Leu Ala Tyr Leu Phe
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Pro Ala Met Ala Ile Phe Lys Ala Glu Asp Ala Ser Gly Glu Ala Ala
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Gly Val Ile Lys Ser Ala Phe Asp Pro Pro Asn Phe Pro Ile Cys Leu
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Leu Gly Asn Arg Thr Leu Ser Arg His Gly Phe Asp Val Cys Ala Lys
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Phe Cys Ser Ser Arg Phe Leu Asn Ala Thr Cys Asp Glu Tyr Phe Thr
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Arg Asn Asn Val Thr Glu Ile Gln Gly Ile Pro Gly Ala Ala Ser Gly
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Ile Asp Met Asp His Pro Tyr Val Phe Ser Asp Met Thr Ser Tyr Phe
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Thr Gly Thr Ile Leu Ala Ile Ala Thr Thr Ser Ala Val Tyr Ile Ser
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Lys Phe Gly Glu Ala Val Asn Gly Asn Leu Val Val Gly Thr Leu Ala
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Ala Gly Leu Ile Tyr Lys Tyr Ile Glu Tyr Arg Gly Ala Glu Lys Glu
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885 890 895

Asp Ile Ser Ala Tyr Thr Tyr Glu Lys Thr Leu Val Met Glu Gln Arg
900 905 910

Ser Gln Ile Leu Lys Gln Met His Leu Thr Lys Asn Glu Arg Glu Arg
915 920 925

Glu Ile Gln Ser Ile Thr Asp Glu Ser Arg Gly Ser Ile Arg Arg Lys
930 935 940

Asn Pro Ala Asn Thr Arg Leu Arg Leu Asn Val Pro Glu Glu Thr Ala
945 950 955 960

Gly Asp Ser Glu Glu Lys Pro Glu Glu Glu Val Gln Leu Ile His Asp
965 970 975

Gln Ser Ala Pro Ser Cys Pro Ser Ser Ser Pro Ser Pro Gly Glu Glu
980 985 990

Pro Glu Gly Glu Gly Glu Thr Asp Pro Glu Lys Val His Leu Thr Trp
995 1000 1005

Thr Lys Asp Lys Ser Val Ala Glu Lys Asn Lys Gly Pro Ser Pro
1010 1015 1020

Val Ser Ser Glu Gly Ile Lys Asp Phe Phe Ser Met Lys Pro Glu
1025 1030 1035

Trp Glu Asn Leu Asn Gln Ser Asn Val Arg Arg Met His Thr Ala
1040 1045 1050

Val Arg Leu Asn Glu Val Ile Val Lys Lys Ser Arg Asp Ala Lys
1055 1060 1065

Leu Val Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Arg Asn Gly
1070 1075 1080

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Asp Glu Asn Tyr Met Glu Phe Leu Glu Val Leu Thr Glu His Leu
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Asp Arg Val Met Leu Val Arg Gly Gly Gly Arg Glu Val Ile Thr
 1100 1105 1110

Ile Tyr Ser
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 Met Leu Asn Asn Leu Thr Asp Cys Glu
 1 5

gac ggc gat ggg gga gcc aac ccc ggt gat ggc aac ccc aaa gag agc 160
 Asp Gly Asp Gly Gly Ala Asn Pro Gly Asp Gly Asn Pro Lys Glu Ser
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agt ccc ttc atc aac agc acg gac acg gag aag ggc aga gag tac gat 208
 Ser Pro Phe Ile Asn Ser Thr Asp Thr Glu Lys Gly Arg Glu Tyr Asp
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ggc agg aac atg gcc ctg ttt gag gag gag atg gac acc agc ccc atg 256
 Gly Arg Asn Met Ala Leu Phe Glu Glu Glu Met Asp Thr Ser Pro Met
 45 50 55

gta tcc tcc ctg ctc agt ggg ctg gcc aac tac acc aac cta ccc cag 304
 Val Ser Ser Leu Leu Ser Gly Leu Ala Asn Tyr Thr Asn Leu Pro Gln
 60 65 70

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 Gly Ser Arg Glu His Glu Glu Ala Glu Asn Asn Glu Gly Gly Lys Lys
 75 80 85

aag ccg gtg cag gct cct cga atg ggc acc ttc atg ggt gtg tac ctg 400
 Lys Pro Val Gln Ala Pro Arg Met Gly Thr Phe Met Gly Val Tyr Leu
 90 95 100 105

ccg tgc ctg cag aac atc ttt ggt gtc atc ctc ttc ctg cgg ctc acg 448
 Pro Cys Leu Gln Asn Ile Phe Gly Val Ile Leu Phe Leu Arg Leu Thr
 110 115 120

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tgg gtg gtg ggc atc gcg ggc atc atg gag tcc ttc tgt atg gtc ttc'	496
Trp Val Val Gly Ile Ala Gly Ile Met Glu Ser Phe Cys Met Val Phe	
125 130 135	
att tgc tgc tcc tgt acg atg ctc aca gcc att tcc atg agt gca atc	544
Ile Cys Cys Ser Cys Thr Met Leu Thr Ala Ile Ser Met Ser Ala Ile	
140 145 150	
gca acc aat ggt gtt gtg cct gct ggt ggc tgc tac tac atg att tcc	592
Ala Thr Asn Gly Val Val Pro Ala Gly Gly Ser Tyr Tyr Met Ile Ser	
155 160 165	
agg tct ctg ggc ccg gag ttt ggg ggc gcc gtg ggc ctc tgc ttc tac	640
Arg Ser Leu Gly Pro Glu Phe Gly Gly Ala Val Gly Leu Cys Phe Tyr	
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ctg ggc acc acc ttt gct ggg gct atg tac atc ctt ggc acg atc gag	688
Leu Gly Thr Thr Phe Ala Gly Ala Met Tyr Ile Leu Gly Thr Ile Glu	
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atc ctg ctg gct tat ctc ttc cca gct atg gcc atc ttc aag gca gaa	736
Ile Leu Leu Ala Tyr Leu Phe Pro Ala Met Ala Ile Phe Lys Ala Glu	
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Asp Ala Ser Gly Glu Ala Ala Ala Met Leu Asn Asn Met Arg Val Tyr	
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Gly Thr Cys Val Leu Thr Cys Met Ala Thr Val Val Phe Val Gly Val	
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Lys Tyr Val Asn Lys Phe Ala Leu Val Phe Leu Gly Cys Val Ile Leu	
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tcc atc ctg gcc atc tat gca ggg gtc atc aag tct gcc ttc gac cca	928
Ser Ile Leu Ala Ile Tyr Ala Gly Val Ile Lys Ser Ala Phe Asp Pro	
270 275 280	
ccc aat ttc ccg atc tgc ctc ctg ggg aac cgc acg ctg tct cgc cat	976
Pro Asn Phe Pro Ile Cys Leu Leu Gly Asn Arg Thr Leu Ser Arg His	
285 290 295	
ggc ttt gat gtc tgt gcc aag ctg gct tgg gaa gga aat gag aca gtg	1024
Gly Phe Asp Val Cys Ala Lys Leu Ala Trp Glu Gly Asn Glu Thr Val	
300 305 310	
acc aca cgg ctc tgg ggc ctt ttc tgc tcc tcc cgc ctc ctc aat gcc	1072
Thr Thr Arg Leu Trp Gly Leu Phe Cys Ser Ser Arg Leu Leu Asn Ala	
315 320 325	
acc tgt gat gag tac ttc acc cga aac aat gtc aca gag atc cag ggc	1120
Thr Cys Asp Glu Tyr Phe Thr Arg Asn Asn Val Thr Glu Ile Gln Gly	
330 335 340 345	

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tac ctg acc aaa ggg gtg att gtc gag agg cgt ggg atg ccc tct gtg Tyr Leu Thr Lys Gly Val Ile Val Glu Arg Arg Gly Met Pro Ser Val 365 370 375	1216
ggc ctg gca gac ggt acc ccc gta gac atg gac cac ccc tat gtc ttc Gly Leu Ala Asp Gly Thr Pro Val Asp Met Asp His Pro Tyr Val Phe 380 385 390	1264
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tca gtc aca ggg atc atg gct ggc tca aac cga tct gga gac ctg cgg Ser Val Thr Gly Ile Met Ala Gly Ser Asn Arg Ser Gly Asp Leu Arg 410 415 420 425	1360
gat gcc cag aag tct atc cct act gga act atc ctg gcc att gct acc Asp Ala Gln Lys Ser Ile Pro Thr Gly Thr Ile Leu Ala Ile Ala Thr 430 435 440	1408
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gcc cca cgt ctg ctg cag gcc atc tcc cgg gat ggc ata gtg ccc ttc Ala Pro Arg Leu Leu Gln Ala Ile Ser Arg Asp Gly Ile Val Pro Phe 510 515 520	1648
ctg cag gtc ttt ggc cat ggc aaa gct aat gga gag cca acc tgg gcg Leu Gln Val Phe Gly His Gly Lys Ala Asn Gly Glu Pro Thr Trp Ala 525 530 535	1696
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ggc atg agc ctc tgc ctg gcc ctc atg ttc att tgc tcc tgg tac tac Gly Met Ser Leu Cys Leu Ala Leu Met Phe Ile Cys Ser Trp Tyr Tyr 605 610 615	1936
gca ctg gtg gcc atg ctc att gcc gga ctc att tat aag tac atc gag Ala Leu Val Ala Met Leu Ile Ala Gly Leu Ile Tyr Lys Tyr Ile Glu 620 625 630	1984
tac cgg ggg gcg gag aag gag tgg ggg gat gga atc cga ggc ctg tct Tyr Arg Gly Ala Glu Lys Glu Trp Gly Asp Gly Ile Arg Gly Leu Ser 635 640 645	2032
ctc agt gca gca cgc tat gct ctc ttg cgc ctg gag gaa gga cct ccg Leu Ser Ala Ala Arg Tyr Ala Leu Leu Arg Leu Glu Glu Gly Pro Pro 650 655 660 665	2080
cat acg aag aac tgg agg ccc cag ctg ctg gtg ctg gtg cgt gtg gac His Thr Lys Asn Trp Arg Pro Gln Leu Leu Val Leu Val Arg Val Asp 670 675 680	2128
cag gat cag aac gtg gtg cat ccg cag ctg ctc tcc ctg acc tcc cag Gln Asp Gln Asn Val Val His Pro Gln Leu Leu Ser Leu Thr Ser Gln 685 690 695	2176
ctc aag gca ggg aag ggc ctg acc att gtg ggc tcc gtc ctt gag ggc Leu Lys Ala Gly Lys Gly Leu Thr Ile Val Gly Ser Val Leu Glu Gly 700 705 710	2224
acc ttt ctg gac aac cat cca cag gct cag cgg gca gag gag tct atc Thr Phe Leu Asp Asn His Pro Gln Ala Gln Arg Ala Glu Glu Ser Ile 715 720 725	2272
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ggc ctc ggg gga ttg caa cac aat acc gtg ctg gtg ggc tgg cct cgc Gly Leu Gly Gly Leu Gln His Asn Thr Val Leu Val Gly Trp Pro Arg 765 770 775	2416
aac tgg agg cag aag gag gat cat cag aca tgg agg aac ttc atc gaa Asn Trp Arg Gln Lys Glu Asp His Gln Thr Trp Arg Asn Phe Ile Glu 780 785 790	2464

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ccc ttc ctg ctg cga cac cac aag gtc tgg agg aaa tgc aaa atg cgg Pro Phe Leu Leu Arg His His Lys Val Trp Arg Lys Cys Lys Met Arg 845 850 855	2656
atc ttc acc gtg gcc cag atg gac gat aac agt atc cag atg aag aag Ile Phe Thr Val Ala Gln Met Asp Asp Asn Ser Ile Gln Met Lys Lys 860 865 870	2704
gac ctg acc acg ttt ctg tac cac tta cgc att act gca gag gtg gag Asp Leu Thr Thr Phe Leu Tyr His Leu Arg Ile Thr Ala Glu Val Glu 875 880 885	2752
gtg gtg gag atg cat gag agc gac atc tcg gca tac acc tac gag aag Val Val Glu Met His Glu Ser Asp Ile Ser Ala Tyr Thr Tyr Glu Lys 890 895 900 905	2800
aca tta gta atg gag caa cga tct cag atc ctc aaa cag atg cac ctc Thr Leu Val Met Glu Gln Arg Ser Gln Ile Leu Lys Gln Met His Leu 910 915 920	2848
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aat gtt ccc gaa gag aca gcg tgt gac aat gag gag aag cca gag gag Asn Val Pro Glu Glu Thr Ala Cys Asp Asn Glu Glu Lys Pro Glu Glu 955 960 965	2992
gag gtg cag ctg atc cat gac cag agt gct ccc agc tgc cct agc agc Glu Val Gln Leu Ile His Asp Gln Ser Ala Pro Ser Cys Pro Ser Ser 970 975 980 985	3040
tcg cca tct cca ggg gag gag ccc gag ggg gag agg gag aca gac cca Ser Pro Ser Pro Gly Glu Glu Pro Glu Gly Glu Arg Glu Thr Asp Pro 990 995 1000	3088

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 Glu Val His Leu Thr Trp Thr Lys Asp Lys Ser Val Ala Glu Lys
 1005 1010 1015
 aat aaa ggc ccc agt ccc gtc tcc tcc gag ggc atc aag gac ttc 3178
 Asn Lys Gly Pro Ser Pro Val Ser Ser Glu Gly Ile Lys Asp Phe
 1020 1025 1030
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 Phe Ser Met Lys Pro Glu Trp Glu Asn Leu Asn Gln Ser Asn Val
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 cgg cgc atg cac aca gct gtg cgg ctg aac gag gtc atc gtg aat 3268
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 Gly Arg Glu Val Ile Thr Ile Tyr Ser
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Asp Thr Glu Lys Gly Arg Glu Tyr Asp Gly Arg Asn Met Ala Leu Phe
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 Met Gly Thr Phe Met Gly Val Tyr Leu Pro Cys Leu Gln Asn Ile Phe
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 Gly Val Ile Leu Phe Leu Arg Leu Thr Trp Val Val Gly Ile Ala Gly
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 Ile Met Glu Ser Phe Cys Met Val Phe Ile Cys Cys Ser Cys Thr Met
 130 135 140
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 145 150 155 160
 Ala Gly Gly Ser Tyr Tyr Met Ile Ser Arg Ser Leu Gly Pro Glu Phe
 165 170 175
 Gly Gly Ala Val Gly Leu Cys Phe Tyr Leu Gly Thr Thr Phe Ala Gly
 180 185 190
 Ala Met Tyr Ile Leu Gly Thr Ile Glu Ile Leu Leu Ala Tyr Leu Phe
 195 200 205
 Pro Ala Met Ala Ile Phe Lys Ala Glu Asp Ala Ser Gly Glu Ala Ala
 210 215 220
 Ala Met Leu Asn Asn Met Arg Val Tyr Gly Thr Cys Val Leu Thr Cys
 225 230 235 240
 Met Ala Thr Val Val Phe Val Gly Val Lys Tyr Val Asn Lys Phe Ala
 245 250 255

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Leu Val Phe Leu Gly Cys Val Ile Leu Ser Ile Leu Ala Ile Tyr Ala
 260 265 270

Gly Val Ile Lys Ser Ala Phe Asp Pro Pro Asn Phe Pro Ile Cys Leu
 275 280 285

Leu Gly Asn Arg Thr Leu Ser Arg His Gly Phe Asp Val Cys Ala Lys
 290 295 300

Leu Ala Trp Glu Gly Asn Glu Thr Val Thr Thr Arg Leu Trp Gly Leu
 305 310 315 320

Phe Cys Ser Ser Arg Leu Leu Asn Ala Thr Cys Asp Glu Tyr Phe Thr
 325 330 335

Arg Asn Asn Val Thr Glu Ile Gln Gly Ile Pro Gly Ala Ala Ser Gly
 340 345 350

Leu Ile Lys Glu Asn Leu Trp Ser Ser Tyr Leu Thr Lys Gly Val Ile
 355 360 365

Val Glu Arg Arg Gly Met Pro Ser Val Gly Leu Ala Asp Gly Thr Pro
 370 375 380

Val Asp Met Asp His Pro Tyr Val Phe Ser Asp Met Thr Ser Tyr Phe
 385 390 395 400

Thr Leu Leu Val Gly Ile Tyr Phe Pro Ser Val Thr Gly Ile Met Ala
 405 410 415

Gly Ser Asn Arg Ser Gly Asp Leu Arg Asp Ala Gln Lys Ser Ile Pro
 420 425 430

Thr Gly Thr Ile Leu Ala Ile Ala Thr Thr Ser Ala Val Tyr Ile Ser
 435 440 445

Ser Val Val Leu Phe Gly Ala Cys Ile Glu Gly Val Val Leu Arg Asp
 450 455 460

Lys Phe Gly Glu Ala Val Asn Gly Asn Leu Val Val Gly Thr Leu Ala
 465 470 475 480

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Trp Pro Ser Pro Trp Val Ile Val Ile Gly Ser Phe Phe Ser Thr Cys
 485 490 495

Gly Ala Gly Leu Gln Ser Leu Thr Gly Ala Pro Arg Leu Leu Gln Ala
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Ile Ser Arg Asp Gly Ile Val Pro Phe Leu Gln Val Phe Gly His Gly
 515 520 525

Lys Ala Asn Gly Glu Pro Thr Trp Ala Leu Leu Leu Thr Ala Cys Ile
 530 535 540

Cys Glu Ile Gly Ile Leu Ile Ala Ser Leu Asp Glu Val Ala Pro Ile
 545 550 555 560

Leu Ser Met Phe Phe Leu Met Cys Tyr Met Phe Val Asn Leu Ala Cys
 565 570 575

Ala Val Gln Thr Leu Leu Arg Thr Pro Asn Trp Arg Pro Arg Phe Arg
 580 585 590

Tyr Tyr His Trp Thr Leu Ser Phe Leu Gly Met Ser Leu Cys Leu Ala
 595 600 605

Leu Met Phe Ile Cys Ser Trp Tyr Tyr Ala Leu Val Ala Met Leu Ile
 610 615 620

Ala Gly Leu Ile Tyr Lys Tyr Ile Glu Tyr Arg Gly Ala Glu Lys Glu
 625 630 635 640

Trp Gly Asp Gly Ile Arg Gly Leu Ser Leu Ser Ala Ala Arg Tyr Ala
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Leu Leu Arg Leu Glu Glu Gly Pro Pro His Thr Lys Asn Trp Arg Pro
 660 665 670

Gln Leu Leu Val Leu Val Arg Val Asp Gln Asp Gln Asn Val Val His
 675 680 685

Pro Gln Leu Leu Ser Leu Thr Ser Gln Leu Lys Ala Gly Lys Gly Leu
 690 695 700

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Thr Ile Val Gly Ser Val Leu Glu Gly Thr Phe Leu Asp Asn His Pro
 705 710 715 720

Gln Ala Gln Arg Ala Glu Glu Ser Ile Arg Arg Leu Met Glu Ala Glu
 725 730 735

Lys Val Lys Gly Phe Cys Gln Val Val Ile Ser Ser Asn Leu Arg Asp
 740 745 750

Gly Val Ser His Leu Ile Gln Ser Gly Gly Leu Gly Gly Leu Gln His
 755 760 765

Asn Thr Val Leu Val Gly Trp Pro Arg Asn Trp Arg Gln Lys Glu Asp
 770 775 780

His Gln Thr Trp Arg Asn Phe Ile Glu Leu Val Arg Glu Thr Thr Ala
 785 790 795 800

Gly His Leu Ala Leu Leu Val Thr Lys Asn Val Ser Met Phe Pro Gly
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Asn Pro Glu Arg Phe Ser Glu Gly Ser Ile Asp Val Trp Trp Ile Val
 820 825 830

His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Arg His His
 835 840 845

Lys Val Trp Arg Lys Cys Lys Met Arg Ile Phe Thr Val Ala Gln Met
 850 855 860

Asp Asp Asn Ser Ile Gln Met Lys Lys Asp Leu Thr Thr Phe Leu Tyr
 865 870 875 880

His Leu Arg Ile Thr Ala Glu Val Glu Val Val Glu Met His Glu Ser
 885 890 895

Asp Ile Ser Ala Tyr Thr Tyr Glu Lys Thr Leu Val Met Glu Gln Arg
 900 905 910

Ser Gln Ile Leu Lys Gln Met His Leu Thr Lys Asn Glu Arg Glu Arg
 915 920 925

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Glu Ile Gln Ser Ile Thr Asp Glu Ser Arg Gly Ser Ile Arg Arg Lys
 930 935 940

Asn Pro Ala Asn Pro Arg Leu Arg Leu Asn Val Pro Glu Glu Thr Ala
 945 950 955 960

Cys Asp Asn Glu Glu Lys Pro Glu Glu Glu Val Gln Leu Ile His Asp
 965 970 975

Gln Ser Ala Pro Ser Cys Pro Ser Ser Ser Pro Ser Pro Gly Glu Glu
 980 985 990

Pro Glu Gly Glu Arg Glu Thr Asp Pro Glu Val His Leu Thr Trp Thr
 995 1000 1005

Lys Asp Lys Ser Val Ala Glu Lys Asn Lys Gly Pro Ser Pro Val
 1010 1015 1020

Ser Ser Glu Gly Ile Lys Asp Phe Phe Ser Met Lys Pro Glu Trp
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Glu Asn Leu Asn Gln Ser Asn Val Arg Arg Met His Thr Ala Val
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Arg Leu Asn Glu Val Ile Val Asn Lys Ser Arg Asp Ala Lys Leu
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Val Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Arg Asn Gly Asp
 1070 1075 1080

Glu Asn Tyr Met Glu Phe Leu Glu Val Leu Thr Glu Gln Leu Asp
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 1100 1105 1110

Tyr Ser
 1115

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24/36

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<400> 5

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                                     1

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Leu Asn Asn Leu Thr Asp Cys Glu Asp Gly Asp Gly Gly Ala Asn Pro
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Gly Asp Gly Asn Pro Lys Glu Ser Ser Pro Phe Ile Asn Ser Thr Asp
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Thr Glu Lys Gly Arg Glu Tyr Asp Gly Arg Asn Met Ala Leu Phe Glu
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gag gag atg gac acc agc ccc atg gta tcc tcc ctg ctc agt ggg ctg      310
Glu Glu Met Asp Thr Ser Pro Met Val Ser Ser Leu Leu Ser Gly Leu
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Ala Asn Tyr Thr Asn Leu Pro Gln Gly Ser Lys Glu His Glu Glu Ala
                70                      75                      80

gaa aac aat gag ggc gga aag aag aag ccg gtg cag gcc cca cgc atg      406
Glu Asn Asn Glu Gly Gly Lys Lys Lys Pro Val Gln Ala Pro Arg Met
                85                      90                      95

ggc acc ttc atg ggc gtg tac ctc ccg tgc ctg cag aac atc ttt ggt      454
Gly Thr Phe Met Gly Val Tyr Leu Pro Cys Leu Gln Asn Ile Phe Gly
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Val Ile Leu Phe Leu Arg Leu Thr Trp Val Val Gly Ile Ala Gly Ile
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Met Glu Ser Phe Cys Met Val Phe Ile Cys Cys Ser Cys Thr Met Leu
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Thr Ala Ile Ser Met Ser Ala Ile Ala Thr Asn Gly Val Val Pro Ala
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ggt ggc tcc tac tac atg att tcc agg tct ctg ggc ccg gag ttt ggg      646
Gly Gly Ser Tyr Tyr Met Ile Ser Arg Ser Leu Gly Pro Glu Phe Gly
                165                      170                      175

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195 200 205	
gcg atg gcc atc ttc aag gca gaa gat gcc agt ggg gag gca gcc gcc Ala Met Ala Ile Phe Lys Ala Glu Asp Ala Ser Gly Glu Ala Ala Ala	790
210 215 220 225	
atg ttg aat aac atg cgg gtg tat ggc acc tgt gtg ctc acc tgc atg Met Leu Asn Asn Met Arg Val Tyr Gly Thr Cys Val Leu Thr Cys Met	838
230 235 240	
gcc acc gta gtc ttt gtg ggc gtc aag tac gtg aac aag ttt gcc ctg Ala Thr Val Val Phe Val Gly Val Lys Tyr Val Asn Lys Phe Ala Leu	886
245 250 255	
gtc ttc ctg ggt tgc gtg atc ctc tcc atc ctg gcc atc tac gca ggg Val Phe Leu Gly Cys Val Ile Leu Ser Ile Leu Ala Ile Tyr Ala Gly	934
260 265 270	
gtc atc aag tct gcc ttc gat cca ccc aat ttc ccg att tgc ctc ctg Val Ile Lys Ser Ala Phe Asp Pro Pro Asn Phe Pro Ile Cys Leu Leu	982
275 280 285	
ggg aac cgc acg ctg tct cgc cat ggc ttt gat gtc tgt gcc aag ctg Gly Asn Arg Thr Leu Ser Arg His Gly Phe Asp Val Cys Ala Lys Leu	1030
290 295 300 305	
gct tgg gaa gga aat gag aca gtg acc aca cgg ctc tgg ggc cta ttc Ala Trp Glu Gly Asn Glu Thr Val Thr Thr Arg Leu Trp Gly Leu Phe	1078
310 315 320	
tgt tcc tcc cgc ctc ctc aat gcc acc tgt gat gag tac ttc acc cga Cys Ser Ser Arg Leu Leu Asn Ala Thr Cys Asp Glu Tyr Phe Thr Arg	1126
325 330 335	
aac aat gtc aca gag atc cag ggc att cct ggt gct gca agt ggc ctc Asn Asn Val Thr Glu Ile Gln Gly Ile Pro Gly Ala Ala Ser Gly Leu	1174
340 345 350	
atc aaa gag aac ctg tgg agt tcc tac ctg acc aag ggg gtg atc gtg Ile Lys Glu Asn Leu Trp Ser Ser Tyr Leu Thr Lys Gly Val Ile Val	1222
355 360 365	
gag agg cgt ggg atg ccc tct gtg ggc ctg gca gat ggt acc ccc gtt Glu Arg Arg Gly Met Pro Ser Val Gly Leu Ala Asp Gly Thr Pro Val	1270
370 375 380 385	
gac atg gac cac ccc tat gtc ttc agt gat atg acc tcc tac ttc acc Asp Met Asp His Pro Tyr Val Phe Ser Asp Met Thr Ser Tyr Phe Thr	1318
390 395 400	

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ctg	ctt	gtt	ggc	atc	tat	ttc	ccc	tca	gtc	aca	ggg	atc	atg	gct	ggc	1366
Leu	Leu	Val	Gly	Ile	Tyr	Phe	Pro	Ser	Val	Thr	Gly	Ile	Met	Ala	Gly	
			405						410				415			
tcg	aac	cgg	tcc	gga	gac	ctg	cgg	gat	gcc	cag	aag	tct	atc	cct	act	1414
Ser	Asn	Arg	Ser	Gly	Asp	Leu	Arg	Asp	Ala	Gln	Lys	Ser	Ile	Pro	Thr	
		420					425					430				
gga	act	atc	ttg	gcc	att	gct	acg	acc	tct	gct	gtc	tac	atc	agc	tct	1462
Gly	Thr	Ile	Leu	Ala	Ile	Ala	Thr	Thr	Ser	Ala	Val	Tyr	Ile	Ser	Ser	
	435					440					445					
gtt	gtt	ctg	ttc	gga	gcc	tgc	atc	gaa	ggg	gtc	gtc	cta	cgg	gac	aag	1510
Val	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	Gly	Val	Val	Leu	Arg	Asp	Lys	
450					455					460					465	
ttt	ggg	gaa	gct	gtg	aat	ggc	aat	ctg	gtg	gtg	ggc	acc	ctg	gcc	tgg	1558
Phe	Gly	Glu	Ala	Val	Asn	Gly	Asn	Leu	Val	Val	Gly	Thr	Leu	Ala	Trp	
				470					475					480		
cct	tct	cct	tgg	gtc	att	gtc	ata	ggc	tct	ttc	ttc	tct	acc	tgc	gga	1606
Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser	Phe	Phe	Ser	Thr	Cys	Gly	
			485					490					495			
gct	gga	cta	cag	agc	ctc	aca	ggg	gcc	cca	cgc	ctg	ctg	cag	gcc	atc	1654
Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	Pro	Arg	Leu	Leu	Gln	Ala	Ile	
		500					505					510				
tcc	cgg	gat	ggc	ata	gtg	ccc	ttc	ctg	cag	gtc	ttt	ggc	cat	ggc	aaa	1702
Ser	Arg	Asp	Gly	Ile	Val	Pro	Phe	Leu	Gln	Val	Phe	Gly	His	Gly	Lys	
	515					520					525					
gcc	aac	gga	gag	cca	acc	tgg	gcg	ctg	ctg	ctg	act	gcc	tgc	atc	tgt	1750
Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	Leu	Leu	Thr	Ala	Cys	Ile	Cys	
530					535					540					545	
gag	atc	ggc	atc	ctc	atc	gcc	tcc	ctg	gat	gag	gtc	gcc	cct	atc	ctt	1798
Glu	Ile	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	Glu	Val	Ala	Pro	Ile	Leu	
				550					555					560		
tcc	atg	ttc	ttc	ctg	atg	tgt	tac	atg	ttt	gtg	aac	ttg	gct	tgc	gcg	1846
Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Met	Phe	Val	Asn	Leu	Ala	Cys	Ala	
			565					570					575			
gtg	cag	aca	ctg	ctg	agg	acg	ccc	aac	tgg	agg	cca	cgc	ttc	cga	tat	1894
Val	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	Trp	Arg	Pro	Arg	Phe	Arg	Tyr	
		580					585					590				
tac	cac	tgg	acc	ctc	tcc	ttc	ctg	ggc	atg	agc	ctc	tgc	ctg	gcc	ctg	1942
Tyr	His	Trp	Thr	Leu	Ser	Phe	Leu	Gly	Met	Ser	Leu	Cys	Leu	Ala	Leu	
	595					600					605					
atg	ttc	att	tgc	tcc	tgg	tat	tat	gcg	ctg	gta	gct	atg	ctc	atc	gct	1990
Met	Phe	Ile	Cys	Ser	Trp	Tyr	Tyr	Ala	Leu	Val	Ala	Met	Leu	Ile	Ala	
610					615					620					625	

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ggc ctc atc tat aag tac atc gag tac cgg ggg gca gag aag gag tgg Gly Leu Ile Tyr Lys Tyr Ile Glu Tyr Arg Gly Ala Glu Lys Glu Trp 630 635 640	2038
ggg gat ggg atc cga ggc ctg tct ctc agt gca gct cgc tat gct ctc Gly Asp Gly Ile Arg Gly Leu Ser Leu Ser Ala Ala Arg Tyr Ala Leu 645 650 655	2086
ttg cgt ctg gag gaa gga ccc ccg cat aca aag aac tgg agg ccc cag Leu Arg Leu Glu Glu Gly Pro Pro His Thr Lys Asn Trp Arg Pro Gln 660 665 670	2134
cta ctg gtg ctg gtg cgt gtg gac cag gac cag aac gtg gtg cac ccg Leu Leu Val Leu Val Arg Val Asp Gln Asp Gln Asn Val Val His Pro 675 680 685	2182
cag ctg ctg tcc ttg acc tcc cag ctc aag gca ggg aag ggc ctg acc Gln Leu Leu Ser Leu Thr Ser Gln Leu Lys Ala Gly Lys Gly Leu Thr 690 695 700 705	2230
att gtg ggc tct gtc ctt gag ggc acc ttt ctg gac aac cac cct cag Ile Val Gly Ser Val Leu Glu Gly Thr Phe Leu Asp Asn His Pro Gln 710 715 720	2278
gct cag cgg gca gag gag tct atc cgg cgc ctg atg gag gct gag aag Ala Gln Arg Ala Glu Glu Ser Ile Arg Arg Leu Met Glu Ala Glu Lys 725 730 735	2326
gtg aag ggc ttc tgc cag gta gtg atc tcc tcc aac ctg cgt gac ggt Val Lys Gly Phe Cys Gln Val Val Ile Ser Ser Asn Leu Arg Asp Gly 740 745 750	2374
gtg tcc cac ctg atc caa tcc ggg ggc ctc ggg ggc ctg caa cac aac Val Ser His Leu Ile Gln Ser Gly Gly Leu Gly Gly Leu Gln His Asn 755 760 765	2422
act gtg cta gtg ggc tgg cct cgc aac tgg cga cag aag gag gat cat Thr Val Leu Val Gly Trp Pro Arg Asn Trp Arg Gln Lys Glu Asp His 770 775 780 785	2470
cag aca tgg agg aac ttc atc gaa ctc gtc cgg gaa act aca gct ggc Gln Thr Trp Arg Asn Phe Ile Glu Leu Val Arg Glu Thr Thr Ala Gly 790 795 800	2518
cac ctc gcc ctg ctg gtc acc aag aat gtt tcc atg ttc ccc ggg aac His Leu Ala Leu Leu Val Thr Lys Asn Val Ser Met Phe Pro Gly Asn 805 810 815	2566
cct gag cgt ttc tct gag ggc agc att gac gtg tgg tgg atc gtg cac Pro Glu Arg Phe Ser Glu Gly Ser Ile Asp Val Trp Trp Ile Val His 820 825 830	2614
gac ggg ggc atg ctc atg ctg ttg ccc ttc ctc ctg cgt cac cac aag Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Arg His His Lys 835 840 845	2662

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gtc tgg agg aaa tgc aaa atg cgg atc ttc acc gtg gcg cag atg gat Val Trp Arg Lys Cys Lys Met Arg Ile Phe Thr Val Ala Gln Met Asp 850 855 860 865	2710
gac aac agc att cag atg aag aaa gac ctg acc acg ttt ctg tac cac Asp Asn Ser Ile Gln Met Lys Lys Asp Leu Thr Thr Phe Leu Tyr His 870 875 880	2758
tta cga att act gca gag gtg gaa gtc gtg gag atg cac gag agc gac Leu Arg Ile Thr Ala Glu Val Glu Val Val Glu Met His Glu Ser Asp 885 890 895	2806
atc tca gca tac acc tac gag aag aca ttg gta atg gaa caa cgt tct Ile Ser Ala Tyr Thr Tyr Glu Lys Thr Leu Val Met Glu Gln Arg Ser 900 905 910	2854
cag atc ctc aaa cag atg cac ctc acc aag aac gag cgg gaa cgg gag Gln Ile Leu Lys Gln Met His Leu Thr Lys Asn Glu Arg Glu Arg Glu 915 920 925	2902
atc cag agc atc aca gat gaa tct cgg ggc tcc att cgg agg aag aat Ile Gln Ser Ile Thr Asp Glu Ser Arg Gly Ser Ile Arg Arg Lys Asn 930 935 940 945	2950
cca gcc aac act cgg ctc cgc ctc aat gtt ccc gaa gag aca gct tgt Pro Ala Asn Thr Arg Leu Arg Leu Asn Val Pro Glu Glu Thr Ala Cys 950 955 960	2998
gac aac gag gag aag cca gaa gag gag gtg cag ctg atc cat gac cag Asp Asn Glu Glu Lys Pro Glu Glu Glu Val Gln Leu Ile His Asp Gln 965 970 975	3046
agt gct ccc agc tgc cct agc agc tcg ccg tct cca ggg gag gag cct Ser Ala Pro Ser Cys Pro Ser Ser Ser Pro Ser Pro Gly Glu Glu Pro 980 985 990	3094
gag ggg gag ggg gag aca gac cca gag aag gtg cat ctc acc tgg acc Glu Gly Glu Gly Glu Thr Asp Pro Glu Lys Val His Leu Thr Trp Thr 995 1000 1005	3142
aag gat aag tca gcg gct cag aag aac aaa ggc ccc agt ccc gtc Lys Asp Lys Ser Ala Ala Gln Lys Asn Lys Gly Pro Ser Pro Val 1010 1015 1020	3187
tcc tcg gag ggg atc aag gac ttc ttc agc atg aag ccg gag tgg Ser Ser Glu Gly Ile Lys Asp Phe Phe Ser Met Lys Pro Glu Trp 1025 1030 1035	3232
gaa aac ttg aac cag tcc aac gtg cgg cgc atg cac aca gct gtg Glu Asn Leu Asn Gln Ser Asn Val Arg Arg Met His Thr Ala Val 1040 1045 1050	3277
cgg ctg aac gag gtc atc gtg aat aaa tcc cgg gat gcc aag ttg Arg Leu Asn Glu Val Ile Val Asn Lys Ser Arg Asp Ala Lys Leu 1055 1060 1065	3322

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[illegible]

30/36

cattgcccac tccagggcca gggccactag ctgacctcac cacctttttc cttgagccca 4766
 aggcagagag agctgcagct ggtgccatct agacaggctc aagtgtggcc agtggcaggg 4826
 ctcgagggcc actgccctgt tgcttggtc aggacctctc tgagatttga tggggactgg 4886
 atattcttcc aggtagtagc catcaagtcg gaagtgttgg acccaggacc tgacattcct 4946
 tcaagactgc cctcccttgc tgtggttttg ccttttgggg caagagaggg gctgggcaaa 5006
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 ctctgggttg caagagcaaa gtttctgttg atgaaaacaa acagcccaca acaacacccc 5126
 ccccccggtt ttctgtgctc catgtgcaat atttgttatg aacctgtgt cgttcaagtc 5186
 acctttataa tcaactgtagc tagatgttcc atgtccatcc aggtgacttt actctgagt 5246
 caatatttca atagcctggt agtgagaaga gtgttgcttt tgtttcagcc gacctatgt 5306
 cagggcaatg caatgcagtc caaaaccctt gtaaatagga gaggttgcaa gccaaatcaa 5366
 gagtatattat cgttattact attattatta ggcctgcctt taattttagt gtttcggtat 5426
 ttgcacacct gcctcggtat tgatcgtgtg ttctctgtgc caatatgcaa aggagaggat 5486
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 attttttaga tacctgtctg 5566

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 <211> 1116
 <212> PRT
 <213> Rattus norvegicus

<400> 6

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 Pro Gly Asp Gly Asn Pro Lys Glu Ser Ser Pro Phe Ile Asn Ser Thr
 20 25 30
 Asp Thr Glu Lys Gly Arg Glu Tyr Asp Gly Arg Asn Met Ala Leu Phe
 35 40 45
 Glu Glu Glu Met Asp Thr Ser Pro Met Val Ser Ser Leu Leu Ser Gly
 50 55 60
 Leu Ala Asn Tyr Thr Asn Leu Pro Gln Gly Ser Lys Glu His Glu Glu
 65 70 75 80

Ala Glu Asn Asn Glu Gly Gly Lys Lys Lys Pro Val Gln Ala Pro Arg
85 90 95

Met Gly Thr Phe Met Gly Val Tyr Leu Pro Cys Leu Gln Asn Ile Phe
100 105 110

Gly Val Ile Leu Phe Leu Arg Leu Thr Trp Val Val Gly Ile Ala Gly
115 120 125

Ile Met Glu Ser Phe Cys Met Val Phe Ile Cys Cys Ser Cys Thr Met
130 135 140

Leu Thr Ala Ile Ser Met Ser Ala Ile Ala Thr Asn Gly Val Val Pro
145 150 155 160

Ala Gly Gly Ser Tyr Tyr Met Ile Ser Arg Ser Leu Gly Pro Glu Phe
165 170 175

Gly Gly Ala Val Gly Leu Cys Phe Tyr Leu Gly Thr Thr Phe Ala Gly
180 185 190

Ala Met Tyr Ile Leu Gly Thr Ile Glu Ile Leu Leu Ala Tyr Leu Phe
195 200 205

Pro Ala Met Ala Ile Phe Lys Ala Glu Asp Ala Ser Gly Glu Ala Ala
210 215 220

Ala Met Leu Asn Asn Met Arg Val Tyr Gly Thr Cys Val Leu Thr Cys
225 230 235 240

Met Ala Thr Val Val Phe Val Gly Val Lys Tyr Val Asn Lys Phe Ala
245 250 255

Leu Val Phe Leu Gly Cys Val Ile Leu Ser Ile Leu Ala Ile Tyr Ala
260 265 270

Gly Val Ile Lys Ser Ala Phe Asp Pro Pro Asn Phe Pro Ile Cys Leu
275 280 285

Leu Gly Asn Arg Thr Leu Ser Arg His Gly Phe Asp Val Cys Ala Lys
290 295 300

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Leu Ala Trp Glu Gly Asn Glu Thr Val Thr Thr Arg Leu Trp Gly Leu
 305 310 315 320

Phe Cys Ser Ser Arg Leu Leu Asn Ala Thr Cys Asp Glu Tyr Phe Thr
 325 330 335

Arg Asn Asn Val Thr Glu Ile Gln Gly Ile Pro Gly Ala Ala Ser Gly
 340 345 350

Leu Ile Lys Glu Asn Leu Trp Ser Ser Tyr Leu Thr Lys Gly Val Ile
 355 360 365

Val Glu Arg Arg Gly Met Pro Ser Val Gly Leu Ala Asp Gly Thr Pro
 370 375 380

Val Asp Met Asp His Pro Tyr Val Phe Ser Asp Met Thr Ser Tyr Phe
 385 390 395 400

Thr Leu Leu Val Gly Ile Tyr Phe Pro Ser Val Thr Gly Ile Met Ala
 405 410 415

Gly Ser Asn Arg Ser Gly Asp Leu Arg Asp Ala Gln Lys Ser Ile Pro
 420 425 430

Thr Gly Thr Ile Leu Ala Ile Ala Thr Thr Ser Ala Val Tyr Ile Ser
 435 440 445

Ser Val Val Leu Phe Gly Ala Cys Ile Glu Gly Val Val Leu Arg Asp
 450 455 460

Lys Phe Gly Glu Ala Val Asn Gly Asn Leu Val Val Gly Thr Leu Ala
 465 470 475 480

Trp Pro Ser Pro Trp Val Ile Val Ile Gly Ser Phe Phe Ser Thr Cys
 485 490 495

Gly Ala Gly Leu Gln Ser Leu Thr Gly Ala Pro Arg Leu Leu Gln Ala
 500 505 510

Ile Ser Arg Asp Gly Ile Val Pro Phe Leu Gln Val Phe Gly His Gly
 515 520 525

33/36

Lys Ala Asn Gly Glu Pro Thr Trp Ala Leu Leu Leu Thr Ala Cys Ile
 530 535 540

Cys Glu Ile Gly Ile Leu Ile Ala Ser Leu Asp Glu Val Ala Pro Ile
 545 550 555 560

Leu Ser Met Phe Phe Leu Met Cys Tyr Met Phe Val Asn Leu Ala Cys
 565 570 575

Ala Val Gln Thr Leu Leu Arg Thr Pro Asn Trp Arg Pro Arg Phe Arg
 580 585 590

Tyr Tyr His Trp Thr Leu Ser Phe Leu Gly Met Ser Leu Cys Leu Ala
 595 600 605

Leu Met Phe Ile Cys Ser Trp Tyr Tyr Ala Leu Val Ala Met Leu Ile
 610 615 620

Ala Gly Leu Ile Tyr Lys Tyr Ile Glu Tyr Arg Gly Ala Glu Lys Glu
 625 630 635 640

Trp Gly Asp Gly Ile Arg Gly Leu Ser Leu Ser Ala Ala Arg Tyr Ala
 645 650 655

Leu Leu Arg Leu Glu Glu Gly Pro Pro His Thr Lys Asn Trp Arg Pro
 660 665 670

Gln Leu Leu Val Leu Val Arg Val Asp Gln Asp Gln Asn Val Val His
 675 680 685

Pro Gln Leu Leu Ser Leu Thr Ser Gln Leu Lys Ala Gly Lys Gly Leu
 690 695 700

Thr Ile Val Gly Ser Val Leu Glu Gly Thr Phe Leu Asp Asn His Pro
 705 710 715 720

Gln Ala Gln Arg Ala Glu Glu Ser Ile Arg Arg Leu Met Glu Ala Glu
 725 730 735

Lys Val Lys Gly Phe Cys Gln Val Val Ile Ser Ser Asn Leu Arg Asp
 740 745 750

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Gly Val Ser His Leu Ile Gln Ser Gly Gly Leu Gly Gly Leu Gln His
 755 760 765

Asn Thr Val Leu Val Gly Trp Pro Arg Asn Trp Arg Gln Lys Glu Asp
 770 775 780

His Gln Thr Trp Arg Asn Phe Ile Glu Leu Val Arg Glu Thr Thr Ala
 785 790 795 800

Gly His Leu Ala Leu Leu Val Thr Lys Asn Val Ser Met Phe Pro Gly
 805 810 815

Asn Pro Glu Arg Phe Ser Glu Gly Ser Ile Asp Val Trp Trp Ile Val
 820 825 830

His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Arg His His
 835 840 845

Lys Val Trp Arg Lys Cys Lys Met Arg Ile Phe Thr Val Ala Gln Met
 850 855 860

Asp Asp Asn Ser Ile Gln Met Lys Lys Asp Leu Thr Thr Phe Leu Tyr
 865 870 875 880

His Leu Arg Ile Thr Ala Glu Val Glu Val Val Glu Met His Glu Ser
 885 890 895

Asp Ile Ser Ala Tyr Thr Tyr Glu Lys Thr Leu Val Met Glu Gln Arg
 900 905 910

Ser Gln Ile Leu Lys Gln Met His Leu Thr Lys Asn Glu Arg Glu Arg
 915 920 925

Glu Ile Gln Ser Ile Thr Asp Glu Ser Arg Gly Ser Ile Arg Arg Lys
 930 935 940

Asn Pro Ala Asn Thr Arg Leu Arg Leu Asn Val Pro Glu Glu Thr Ala
 945 950 955 960

Cys Asp Asn Glu Glu Lys Pro Glu Glu Glu Val Gln Leu Ile His Asp
 965 970 975

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Gln Ser Ala Pro Ser Cys Pro Ser Ser Ser Pro Ser Pro Gly Glu Glu
980 985 990

Pro Glu Gly Glu Gly Glu Thr Asp Pro Glu Lys Val His Leu Thr Trp
995 1000 1005

Thr Lys Asp Lys Ser Ala Ala Gln Lys Asn Lys Gly Pro Ser Pro
1010 1015 1020

Val Ser Ser Glu Gly Ile Lys Asp Phe Phe Ser Met Lys Pro Glu
1025 1030 1035

Trp Glu Asn Leu Asn Gln Ser Asn Val Arg Arg Met His Thr Ala
1040 1045 1050

Val Arg Leu Asn Glu Val Ile Val Asn Lys Ser Arg Asp Ala Lys
1055 1060 1065

Leu Val Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Arg Asn Gly
1070 1075 1080

Asp Glu Asn Tyr Met Glu Phe Leu Glu Val Leu Thr Glu Gln Leu
1085 1090 1095

Asp Arg Val Met Leu Val Arg Gly Gly Gly Arg Glu Val Ile Thr
1100 1105 1110

Ile Tyr Ser
1115

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<211> 20

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 7

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20

<210> 8

<211> 20

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36/36

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 8

tcttcttgag actgcagtca

20